

for the claimed invention. Accordingly, Applicant respectfully submits the present application is in full compliance with 35 U.S.C. § 112, first paragraph.

The rejection of claims 1, 5, and 11-14 under 35 U.S.C. § 102(e) as being anticipated by Mochizuki is respectfully traversed and reconsideration is requested.

Claim 1 is allowable over Mochizuki in that claim 1 recites a combination of elements including, for example, "A backlight unit in a field sequence liquid crystal display including a reflection plate... a diffusion plate... wherein a plurality of lamps are arranged such that LED chips realizing R, G, and B colors are built in the respective lamps." Mochizuki fails to teach, either expressly or inherently, at least these features of the claimed invention. Accordingly, Applicant respectfully submits that claims 2-4, 11, and 12, which depend from claim 1, are also allowable over Mochizuki.

Claim 5 is allowable over Mochizuki in that claim 5 recites a combination of elements including, for example, "A backlight unit in a field sequence liquid crystal display including a reflection plate... a diffusion plate... wherein a plurality of unit chips are arranged such that LED chips realizing R, G, and B colors are built in the respective unit chips." Mochizuki fails to teach, either expressly or inherently, at least these features of the claimed invention. Accordingly, Applicant respectfully submits that claims 6-8, 13, and 14, which depend from claim 5, are also allowable over Mochizuki.

The Examiner cites Mochizuki as disclosing "a reflection plate (4), and a diffusion plate (160), the backlight unit using LED as a backlight lamp... wherein a plurality of lamps [or chips] are arranged such that LED chips realizing R, G, and B colors are built in the respective lamps [or chips] (figures 9A-9C & applicant's [related art shown in] figure 2)."

Preliminarily, it is noted that claims 1 and 5 were rejected under 35 U.S.C. § 102(e) as being anticipated by Mochizuki. However, the Examiner cites the related art shown in Figure

2 within the body of the rejection. If the Examiner intends to actually rely on the related art shown in Figure 2, Applicant respectfully requests withdrawal of the rejection of claims 1 and 5 under 35 U.S.C. § 102(e) as the rejection is not anticipatory.

Moreover, even if the rejection of claims 1 and 5 under 35 U.S.C. § 102(e) as being anticipated by Mochizuki is not withdrawn (such that only the teachings of Mochizuki are relied upon), Applicant respectfully submits Mochizuki fails to teach at least the aforementioned elements of claims 1 and 5. For example, it is submitted that Mochizuki fails to teach “wherein a plurality of lamps are arranged such that LED chips realizing R, G, and B colors are built in the respective lamps,” as asserted by the Examiner. Specifically, Mochizuki teaches at column 5, lines 34-51,

“FIGS. 9A, 9B and 9C show embodiments showing the forms of the arrangement of red LEDs, green LEDs and blue LEDs. The arrangements shown there are applicable to each of the above-described and following embodiments.... FIG. 9A show an example in which a plurality of sets of blue LEDs, green LEDs and red LEDs are arranged in the lengthwise direction of the end surface, FIG. 9B shows an example in which the LED groups of FIG. 9A are arranged in two rows in the lengthwise direction of the end surface, and FIG. 9C shows an example in which the LED groups of FIG. 9A are arranged in two rows in the lengthwise direction of the end surface while being deviated by a half of the arrangement pitch of the LED groups.

Accordingly, it is respectfully submitted that Mochizuki fails to disclose “wherein a plurality of lamps are arranged such that LED chips realizing R, G, and B colors are built in the respective lamps,” as asserted by the Examiner. Further, and assuming *arguendo* that a plate “is defined as a smooth, flat, relatively thin, rigid body of uniform thickness,” as asserted by the Examiner (see the “Response to Arguments” section of the present Office Action), Applicant respectfully submits that the “reflection plate (4)” of Mochizuki is not a “plate” at all. For example, at column 3, lines 54-59, Mochizuki states “In FIG. 2, the reference numeral 4 designates a concave mirror having a cylindrical reflecting surface....”

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Accordingly, Applicant respectfully submits Mochizuki fails to teach, either inherently or explicitly, at least the aforementioned combination of elements of the present invention.

In the "Response to Arguments" section of the present Office Action, the Examiner states that the "applicant must discuss the references applied against the claims, explaining how the claims avoid the references or distinguish from them." In view of the arguments presented above, it is submitted that Applicant has indeed explained "how the claims avoid the references or distinguish from them" and therefore requests withdrawal of the present rejection under 35 U.S.C. § 102(e).

The rejection of claims 3, 4, 7, and 8 under 35 U.S.C. § 103(a) as being unpatentable over Mochizuki is respectfully traversed and reconsideration is requested.

Applicant respectfully submits claims 3 and 4 include all of the limitations of claim 1 and are allowable by virtue of the dependence from claim 1. Moreover, claims 7 and 8 include all of the limitations of claim 5 and are allowable by virtue of the dependence from claim 5.

The rejection of claims 2 and 6 under 35 U.S.C. § 103(a) as being unpatentable over Mochizuki in view of Meggs et al. is respectfully traversed and reconsideration is requested.

Claims 2 and 6 include all of the elements of claims 1 and 5, respectively, as discussed above, and Mochizuki fails to teach or suggest at least the features of independent claims 1 and 5 as recited above. Similarly, Meggs et al. fails to cure the deficiency of Mochizuki. Accordingly, Applicant respectfully submits that the Examiner has not established a *prima facie* case of obviousness regarding claims 2 and 6 in view of claims 1 and 5, as above.

The rejection of claims 1, 5, and 11-14 under 35 U.S.C. § 103(a) as being unpatentable over Tokunaga in view of the related art shown in Figures 1 and 2 is respectfully traversed and reconsideration is requested.

Claim 1 is allowable over Tokunaga in view of the related art shown in Figures 1 and 2 in that claim 1 recites a combination of elements including, for example, “A backlight unit in a field sequence liquid crystal display including a reflection plate... a diffusion plate... wherein a plurality of lamps are arranged such that LED chips realizing R, G, and B colors are built in the respective lamps.” Neither Tokunaga nor the related art shown in Figures 1 and 2, singly or in combination, teach or suggest at least these features of the claimed invention. Accordingly, Applicant respectfully submits that claims 2-4, 11, and 12, which depend from claim 1, are also allowable over Tokunaga in view of the related art shown in Figures 1 and 2.

Claim 5 is allowable over Tokunaga in view of the related art shown in Figures 1 and 2 in that claim 5 recites a combination of elements including, for example, “A backlight unit in a field sequence liquid crystal display including a reflection plate... a diffusion plate... wherein a plurality of unit chips are arranged such that LED chips realizing R, G, and B colors are built in the respective unit chips.” Neither Tokunaga nor the related art shown in Figures 1 and 2, singly or in combination, teach or suggest at least these features of the claimed invention. Accordingly, Applicant respectfully submits that claims 6-8, 13 and 14, which depend from claim 5, are also allowable over Tokunaga in view of the related art shown in Figures 1 and 2.

The Examiner cites Tokunaga as disclosing “a liquid crystal display (3) including a light-guide plate (1), a reflection plate (1a), the backlight unit using LED as a backlight lamp ... wherein a plurality of lamps are arranged such that LED chips realizing R, G, and B colors

are built in the respective lamps (claim 1 of Tokunaga & applicant's [related art shown in] figure 2)."

Preliminarily, it is noted that, while Tokunaga was cited above as disclosing various elements of claims 1 and 5, the Examiner also cited the related art shown in Figure 2 within the body of the rejection. If the Examiner intends to actually rely on the related art shown in Figure 2 to show any of the light-guide plate, a reflection plate, or backlight unit using LED as a backlight lamp having a plurality of lamps arranged such that LED chips realizing R, G, and B colors are built in the respective lamps, Applicant respectfully requests the Examiner precisely indicate which claimed elements are intended to be taught by which references. Otherwise, Applicant proceeds on the basis that only Tokunaga is being used to allegedly teach the light-guide plate, a reflection plate, or backlight unit using LED as a backlight lamp having a plurality of lamps arranged such that LED chips realizing R, G, and B colors are built in the respective lamps.

Applicant respectfully submits that Tokunaga fails to teach or even suggest "wherein a plurality of lamps are arranged such that LED chips realizing R, G, and B colors are built in the respective lamps," as asserted by the Examiner. For example, claim 1 of Tokunaga states "a plurality of light emitting diodes each serving as a light source for supplying a light to said light guide plate, said light emitting diodes being arranged to enable selective illumination of different colored light by said lighting unit..." Accordingly, Applicant respectfully submits neither Tokunaga nor the related art shown in Figure 2, either singly or in combination, teaches or even suggests all the claim elements of the present invention, as required by M.P.E.P. § 2143.03.

In the "Response to Arguments" section of the present Office Action, the Examiner states that the "applicant must discuss the references applied against the claims, explaining

how the claims avoid the references or distinguish from them.” It is respectfully submitted that the arguments presented above are essentially identical to the arguments presented in the Reply filed November 5, 2003. In view of the arguments presented above, it is submitted that Applicant has indeed explained “how the claims avoid the references or distinguish from them.” In the “Response to Arguments” section of the present Office Action, the Examiner attempts to define a reasonable interpretation of the word “unit.” Regardless of the definition of “unit,” Applicant respectfully submits Tokunaga fails to teach or suggest the structure defined by the element “a plurality of lamps... arranged such that LED chips realizing R, G, and B colors are built in the respective lamps,” as asserted by the Examiner. Therefore, Applicant requests withdrawal of the present rejection under 35 U.S.C. § 103(a).

The rejection of claims 9 and 10 under 35 U.S.C. § 103(a) as being unpatentable over Stinson is respectfully traversed and reconsideration is requested.

Claim 9 is allowable over Stinson in that claim 9 recites a combination of elements including, for example, “A backlight unit in a field sequence liquid crystal display including a reflection plate... a diffusion plate... the backlight further comprising... a plurality of lamps arranged alternatively in a plurality of rows; and three LED chips built in each of the lamps, the three LED chips realizing R, G, and B colors respectively.” Stinson fails to teach or suggest at least these features of the claimed invention. Accordingly, Applicant respectfully submits that claims 15 and 16, which depend from claim 9, are also allowable over Stinson.

Claim 10 is allowable over Stinson in that claim 10 recites a combination of elements including, for example, “A backlight unit in a field sequence liquid crystal display including a reflection plate... a diffusion plate... the backlight further comprising... a plurality of unit chips arranged alternatively in a plurality of rows; and three LED chips built in each of the unit chips, the three LED chips realizing R, G, and B colors respectively.” Stinson fails to

teach or suggest at least these features of the claimed invention. Accordingly, Applicant respectfully submits that claims 17 and 18, which depend from claim 10, are also allowable over Stinson.

The Examiner cites Stinson as disclosing “three LED chips built in each of the lamps [or chips], the three LED chips realizing R, G, and B colors... wherein the lamp [or unit chips] are turn on/off according to a sequence of R chip, a G chip, and a B chip in each of the rows (figure 3; column 3, lines 10-30).”

Applicant respectfully submits, however, Stinson does not disclose “three LED chips built in each of the lamps [or chips], the three LED chips realizing R, G, and B colors... wherein the lamp [or unit chips] are turn on/off according to a sequence of R chip, a G chip, and a B chip in each of the rows,” as asserted by the Examiner. For example, at column 3, lines 10-30, Stinson states

“...reflector cup 18 into which one end of leads 20, 21 and 22 are attached while their opposite ends are attached to the anodes of the light dies.

As shown in FIGS. 3 and 4, each light die 7, 8 and 9 includes an anode 19 and a cathode 29 that is soldered on and within the cup 18. Therefore, in this manner, it can be seen that the cathode lead 13 is coupled in common with the cathodes of a plurality of light die cathodes. With respect to composition, one light die, such as 7 representing red, may be composed of a composition consisting of deep red AlGaAs (Aluminum Gallium Arsenide). Light die 8 may represent green and be composed of Gallium Phosphide on Gallium Phosphide (GaP). The remaining light die 9 is representative of blue and is composed of Silicon Carbide. Preferably, the connecting wires 20-22 inclusive are approximately 1 mil. in thickness and each is composed of gold wire. The cathode lead including reflective cup and anode leads are soldered steel, silver plated or the like.

Referring now in detail to FIGS. 3 and 4, it can be seen that the reflector cup 18 includes three mounting...”

Accordingly, Applicant respectfully submits Stinson fails to teach or suggest “three LED chips built in each of the lamps [or chips], the three LED chips realizing R, G, and B colors... wherein the lamp [or unit chips] are turn on/off according to a sequence of R chip, a G chip, and a B chip in each of the rows,” as asserted by the Examiner. Moreover, and assuming *arguendo* that Stinson did disclose what is asserted by the Examiner, Applicant respectfully submits Stinson fails to teach or suggest at least to the rest of the aforementioned combination of elements actually claimed in claims 9 and 10. To reiterate, claim 9 recites, among other elements, “[a] backlight unit... including a reflection plate... a diffusion plate... the backlight further comprising... a plurality of lamps arranged alternatively in a plurality of rows; and three LED chips built in each of the lamps, the three LED chips realizing R, G, and B colors respectively.” Similarly, claim 10 recites, among other elements, “[a] backlight unit... including a reflection plate... a diffusion plate... the backlight further comprising... a plurality of unit chips arranged alternatively in a plurality of rows; and three LED chips built in each of the unit chips, the three LED chips realizing R, G, and B colors respectively.”

The rejection of claims 15-18 under 35 U.S.C. § 103(a) as being unpatentable over Stinson in view of either Mochizuki or Tokunaga is respectfully traversed and reconsideration is requested.

Claims 15-18 variously include all of the elements of claims 9 and 10, respectively, as discussed above, and Stinson fails to teach or suggest at least the features of independent claims 9 and 10 as recited above. Similarly, both Mochizuki and Tokunaga fail to cure this deficiency of Stinson. Accordingly, Applicant respectfully submits that the Examiner has not established a *prima facie* case of obviousness regarding claims 15-18 in view of claims 9 and 10, as above.

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In rejecting claims 15-18, the Examiner acknowledges Stinson as disclosing “the claimed invention, except the new LED (red, green, & blue) being used as a backlight for the liquid crystal display” (Office Action, page 8). Applicants submit, however, that claims 15-18 do not require that a particular LED be used as a backlight for a liquid crystal display. Specifically, claims 15 and 17 require that the backlight unit recited in claims 9 and 10 further include a light-guiding plate. Claims 16 and 18 require that the lamps (or chips) recited in claims 9 and 10 be arranged between reflection and diffusion plates also recited in claims 9 and 10. As mentioned above with respect to the rejection of claims 9 and 10, Stinson fails to teach or suggest the reflection and diffusion plates. Further, Stinson fails to teach the lamps (or chips) as particularly set forth in claims 9 and 10. For at least the reasons set forth above, Applicant request withdrawal of the present rejection under 35 U.S.C. § 103(a).

If the Examiner deems that a telephone conversation would further the prosecution of this application, the Examiner is invited to call the undersigned at (202) 496-7500.

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If these papers are not considered timely filed by the Patent and Trademark Office, then a petition is hereby made under 37 C.F.R. §1.136, and any additional fees required under 37 C.F.R. §1.136 for any necessary extension of time, or any other fees required to complete the filing of this response, may be charged to Deposit Account No. 50-0911. Please credit any overpayment to deposit Account No. 50-0911. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

Date: May 5, 2004

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